revenue. At the plantations vegetation is so literally swept away that only here and there can we see a standing tree. There is not a leaf left on either the indigenous or cinchona-trees. After a careful inspection we have estimated that 20,000 cinchona-trees of all ages have been uprooted or so severely damaged that they must be immediately barked. Though we had given up barking definitely till the return of dry weather next year, we are now obliged to take it up with great energy and send the bark down to be dried in the plains. We hope to get a return of about 1,500*l.* to 1,800*l.* for "broken and twiggy" bark, but this will be but a poor result considering the sacrifice made to secure the bark at all hazards before it has dried and hardened on the trees.

Out of the small garden at Castleton, covering only about five to six acres, I found fifty-five trees destroyed, and ninety-eight severely injured. Out of the trees severely injured, *i.e.* probably blown quite down and put up again with trimmed limbs and supports, I found the Para-rubber mangosteen, Tonquin-bean, cam-wood, olive, cinnamon, nutmeg, East Indian mango, chocolate, Liberian coffee, &c. Even if they live we shall get no fruit from them during the next season, and we shall be unable to supply plants in great demand for some time.

I am glad to say that the superintendent did not suffer personally, though the roof of the residence was partially blown away, and the office canted almost on its side.

The Parade Garden, Kingston, felt the hurricane greatly, but as we had nothing there except ornamental trees and shrubs we hope to recover our losses soon.

The cocoanut plantation at the Palisadoes had sixty-one bearing trees blown down, and forty-one rather young ones just coming into bearing. This plantation is on a narrow spit of sand running six miles out and inclosing Kingston Harbour. The force of the wind being from the south and against the plantation, the waves broke over it at several places, and the harbour being consequently filled, much damage was done to the wharves and shipping.

You will, I am sure, be sorry to hear that the Old Bath Garden has also shared in the general injury. The fine old cinnamon-tree, the camphor-tree, and the pinus are down. Till the place is cleared the keeper is unable to give me fuller particulars.

The King's House Gardens and grounds have fortunately escaped much injury. D. MORRIS

NOTES

MESSRS. CHARLES GRIFFIN AND CO. announce that they have at last in the press the memorial volume to the late Prof. Macquorn Rankine. It is entitled "A Selection from the Miscellaneous Scientific Papers of W. J. Macquorn Rankine, C.E., LL.D., F.R.S., late Regius Professor of Civil Engineering and Mechanics in the University of Glasgow, from the *Transactions* and *Proceedings* of the Royal and other Scientific and Philosophical Societies, and the Scientific and Engineering Journals, with an Introductory Memoir of the Author, by P. G. Tait, M.A., Professor of Natural Philosophy in the University of Edinburgh; edited by W. J. Millar, C.E., Secretary to the Institution of Engineers and Shipbuilders in Scotland." The volume will contain many papers of great weight and value, at present to be found only in the Records of the various scientific and philosophical societies, and in the scientific and engineering journals, to which they were originally contributed, and therefore inaccessible to the majority of scientific workers. No doubt the bringing-together in one volume of these successive important contributions to science will be acceptable to all who knew of Rankine's high position in science. A fine portrait on steel will be prefixed to the volume.

WE have a few further details on the meeting of the German Association at Danzig. Salzburg was unanimously chosen as the town in which the next year's congress of the Association should be held. Dr. Wernicke of Berlin gave an address "On the Scientific Standpoint in Psychiatry," and in the section for physics and meteorology Dr. L. Weber read a paper upon "Lightning Strokes in Schleswig-Holstein." In the section for the superintendence of instruction in mathematics and natural science Dr. Feyerabendt spoke with reference to mathematical school-books, which, as he showed, would bear much simplification and condensation. A point which he urged among others was that the matter taught should be divided, not upon scientific principles, but with regard to its easy and ready comprehension by the scholar.

THE death is announced, on August 22, of the Hon. John Imray, M.D., of Dominica, West Indies. Dr. Imray had done much for the botany of his island, but is best known for his successful efforts to introduce Liberian coffee and the cultivation of limes into the West Indies. Another death is that of M. Edmond Barbier, the translator into French of some of the works of Mr. Herbert Spencer and Sir John Lubbock, at the age of forty-six years.

A LAUDABLE innovation has been made in the library of the French Academy, which is not open to the public. Any one wishing to consult any of the rare and precious books in the library has only to make an application to the librarian to receive the required authority.

DR. WATT, of the Bengal Educational Department, who is now engaged in the examination at Kew of his extensive collections of Indian plants, has been deputed by the Government of India to visit Manipur, on his return from furlough, for the purpose of reporting on the forest and vegetable resources of that territory.

Science, the new American record of scientific progress, states that the Rev. W. H. Dallinger has consented to become Governor and Professor of Natural Sciences of Wesley College, Sheffield, U.S.A.

MR. JAMES BLYTH of Edinburgh has been elected to succeed Prof. Forbes in the Chair of Natural Philosophy at Anderson's College, Glasgow.

DR. J. VOSMŒR of the Hague intends publishing a detailed bibliography of the sponges, and it is to be hoped that all authors of works or papers on this interesting group will send copies of their writings to him at 73, de Ruyter Straat, Haag, Holland.

THE bureau of French meteorology has been revived for 1880-81, M. Hervé Mangon being continued president.

THE recent change of Ministry in France has brought forward for the second time since 1870 the Minister of Public Instruction to the direction of the Cabinet. M. Barthelemy St. Hilaire, the new head of the French Foreign Office, is not only a member of the French Senate, but also of the Academy of Moral and Political Sciences. He has published a large number of works on philosophy, among which the most considerable is a translation of the whole works of Aristotle, with a commentary. In order to be better able to understand physics and mechanics, he studied mathematics at the age of forty-five under the direction of his friend Corioles, then scientific director of the Polytechnic School. He was an intimate friend of Leverrier. He was born in Paris in 1809, and has just completed his seventy-first year.

THE Birmingham Natural History Society, which has hitherto met in the Midland Institute, has been provided with ample accommodation in the Mason Science College. The Society, which numbers 400 members, is making an effort to fit up the rooms in an appropriate and comfortable manner.

THE Epping Forest and County of Essex Naturalists' Field Club held the seventh, and probably the last, of the summer course of field meetings at High Beech and Monk's Woods on the 2nd inst., the purpose of the meeting being the observation of the *cryptogamic* flora of Epping Forest. The conductors were Dr. M. C. Cooke, Mr. Worthington Smith, F.L.S., Mr. James English, and Mr. E. M. Holmes, F.L.S.; and the party (upwards of fifty in number) included many well-known London naturalists. Several scarce *fungi* were noticed, although the weather proved very unfavourable for field-work. After tea, botanical demonstrations were given, one of the speakers being Prof. Max Cornu of Paris, who expressed the pleasure he had in being present, and said that he hoped to establish similar meetings in Paris. It is intended to make this "fungus meeting" an annual institution.

DR. ANDREW WILSON, F.R.S.E., has in the press a new work entitled "Chapters on Evolution," in which a popular *résumé* of the Darwinian and other theories of development is to be given. Messrs. Chatto and Windus are the publishers.

THE French Minister of War has authorised the erection of a meteorological observatory in the fort which has been recently constructed in the Ballon de Servance, in the Vosges.

THE Rev. A. E. Eaton states (*Entomologists' Monthly Mag.*) that "in Lisbon male field-crickets are sold in miniature cages by bird-fanciers at the rate of a penny a-piece. They are kept in stock by hundreds together in open tea-chests, lined for the first three or four inches from the top with slips of tin, and are fed upon lettuces. The natives like to have a 'grillo' chirping in the room, and make pets of them." Has this, or a similar custom, been observed by travellers in other parts of the South of Europe? No doubt there is a superstitious element in it, on the principle that sometimes induces our own people to send to the bakers for house-crickets "for luck." In China, and elsewhere, other Orthopterous insects are well known to be sold in little cages.

HITHERTO, we must confess, Trinity College, London, has been somewhat of a *nominis umbra* to us; but with its fat Calendar before us it can be so no longer. It was established in 1872 mainly for the promotion of musical education. The Council, we are glad to see, take a liberal view of what is necessary to constitute a well-educated musician, and provide the means of a really liberal education. There is a faculty of music in which, among other subjects, the physiology of the vocal organs and of the ear is taught. In the faculty of arts, besides ancient and modern languages, there are classes in mathematics, chemistry, zoology, botany, geology, and physiology. The College has not only its curriculum for students in London, but has centres for examination all over the three kingdoms, and judging from the lists of names of those who have passed, these examinations must be widely taken advantage of. The Calendar contains all necessary information as to the College and its work, with the examination papers for the past year and other matters. If it is able to carry out its programme, the institute ought to do much good.

AT the Exhibition in connection with the Sanitary Congress which has been held at Exeter, there are several things worthy of some notice. It may be mentioned that the marked features of the collection are the gas stoves, improved flushing apparatus, ranges for the saving of fuel, various appliances for house drainage, ventilation, and arrangements to prevent sewer gas from rising into houses through closets and sinks. The number of manufacturers who exhibit under these heads shows the principal directions in which practical sanitarians are working. First as to the gas-stoves. These are divided into heating-stoves and cooking-stoves. In the heating group the object is to attain as much radiation as possible; in the cooking group the object is to prevent loss of heat by radiation. The Exeter Gaslight and Coke Company, believing that gas will soon supersede coal for heating and cooking, whilst it will itself be superseded as a lighting agent, have offered four handsome silver medals for the best stoves. It is stated on the authority of a late cook of the Reform Club that the gas kitchener No. 99 in Class III. cooked 13 lbs. of meat in fifty-one minutes, at a cost of three farthings, the gas being at the rate of 3*s.* 6*d.* per thousand. The graduation of heat can be effectively regulated by the tap of the pipe which secures the gas burners. The gas water-heaters shown are of two kinds—those in which the gas jets are introduced under the bath, and those in which they are introduced into a separate boiler placed in the bath-room or outside it. No. 25, Class III., is an example of an upright cylindrical boiler with which water enough for a bath can in twenty minutes be obtained at 95°. It is impossible to draw attention to all the novelties, but there are some few deserving special attention. Class II., No. 3, is a "twin" door. Two doors a few inches apart are hinged so as to open together. There is an open space for ventilation between them. For housemaids' sinks on different landings, for closets, and for sculleries and kitchens, they are invaluable. In filters there is not much new. A French firm shows a modification of their well-known filters, it being an adaptation of their principle to table filters with the use of Carferal. The main point is that the Carferal can be so readily changed, and it is now well recognised that no filtering material is of any good after many days' use. The trouble involved is no more than that of making tea, and a lady can see to it herself without being at the mercy of careless servants.

THE *St. James's Magazine* for October contains the first instalment of an interesting series of articles on "Lightning Protection for Telegraphs."

THE remains of a lake village have been discovered in a marsh at Regnate, near Milan. They include, it is stated, shavings of flints apparently cut with bronze instruments.

THE *Daily News* Naples correspondent writes that in the excavations commenced a short time ago at Villagrande (Sardinia), there have come to light some instruments which are very remarkable if, as believed by competent persons, they belong to the bronze epoch, which, it is asserted, was exceptionally prolonged in this part of the island. The instruments in question are two bronze saws and a four-pronged fork, all is said to be found in the same repository. Near Taranto, in some new excavations opened in the vicinity of former ones, there have been found twenty-two skeletons, each in its respective tomb, not far below the surface of the ground. The tombs are all dug in the rock, disposed in various positions, and covered with square slabs of stone. Some of them were capable of holding two corpses.

MR. PFOUNDES will hold, on Saturday afternoon, at 1, Cleveland Row, St. James's, the first of a series of meetings at which Japanese art with native sketches, photographs, &c., will be exhibited, and some account given of the country and people.

THE Philadelphia Court has forfeited the charters of the Eclectic Medical College of Pennsylvania and the American University of Philadelphia for selling bogus diplomas. These were the medical colleges managed by Dr. Buchanan, who is now awaiting his trial here.

THE exhibition of the Photographic Society opened at the Galleries, 5A, Pall Mall East, on Monday, and is quite worth a visit. There are several productions of special interest: among these are some fine photographs from Novaya Zemlya taken during the second Dutch Arctic Expedition last year; several excellent views of the Tay Bridge disaster; Burnham Beeches, by Lieut. L. Darwin, R.E.; magnificent portraits of lions and

tigers taken, we presume, in the Zoological Gardens; several beautiful views taken of Siam, including a group of Laotian huts. There are also several specimens of new apparatus used in photography.

AN important innovation has been made in all the French colleges by M. Ferry. Any pupil wishing to be promoted to a superior class is obliged to pass an examination. The Government is asking important credits for the rebuilding of the principal colleges of Paris and the construction of new colleges outside of the fortifications.

Education is the title of a new international bi-monthly magazine, devoted to the science, the art, the philosophy, and the history of education. It is published at Boston, Mass., and by Trübner and Co., London.

A USEFUL exhibition is being held in Glasgow of apparatus for the utilisation of gas, electricity, oils, &c., and of hydraulic, architectural, mining, and sanitary appliances.

UNDER the name of Tong-pang-chong a Chinese remedy for skin diseases was brought to European notice some two years since. The material as brought to this country appeared like fragments of a woody root, and it was said to be produced by a plant growing in Siam, from whence it is sent to China, where its use had become quite general. From subsequent information received from China and from examination and comparison of specimens sent to this country with those already contained in the Kew Museum, there seemed but little doubt that the plant which produced the Tong-pang-chong of the Chinese was *Rhinacanthus communis*, an acanthaceous plant. A good deal of interest was attached to this remedy when it first came to notice, since which time nothing has been heard of it until within the last few weeks, when some of the material has been received in this country, and is now in the possession of Messrs. Christy and Co. of Fenchurch Street. Whether this consignment will prove to be identical with *Rhinacanthus communis*, and so prove the accuracy of the preliminary determination which was made from scant materials, or whether it will turn out to be produced by a distinct plant will no doubt, shortly be seen. The remedy is referred to in the *Kew Garden Report* for 1877, p. 41.

HERR TORNÖE has published in the *Sitzungsberichte der k. Akademie der Wissenschaft zu Wien* (81, 924) a detailed account of the estimations of salt in the Norwegian Sea, conducted by him during the late Norwegian North Sea Expedition. The paper is a valuable contribution to the physical history of the North Sea.

THE monster python which is kept alive in the Antwerp Museum having had inflammation of the jaw, a Belgian doctor volunteered to enter its cage in order to cure it; but the brute attempted to suffocate the poor doctor, who was glad to escape with his life.

THE Queenwood College Mutual Improvement Society seems to be doing much to encourage the study of natural science among its members. The Report of the Committee for the last summer term speaks highly of the various collections made for the exhibition; several useful papers were read and interesting excursions made.

IN the report of the awards made by the different juries of the Exhibition of Agriculture and Insectology at Paris it is stated that a public company has been formed in Spain for the rearing of the silkworm fed on the oak, and the number of cocoons to be collected this year will probably amount to no less than three millions. A special machine for weaving this new silk has worked during the whole time that the Exhibition has been open. A medal was awarded to an exhibitor for a lamp specially arranged to catch insects. It is suggested in the report that the same experiment should be tried by electric light, and a recent instance has been quoted to prove that it would be really successful. A certain number of electric lights, for ordinary illuminating purposes, were used this summer in the gardens of the Meaux Exhibition, in the vicinity of the Forest of Fontainebleau. No arrangements were made for catching the insects, and they fell round the lamps, except a few that got admittance through the holes of the regulator. The number of the latter was so large that two of these lamps placed at a coffee stall in the open air had to be removed, all the consumers being covered by moths of every description.

THE piscicultural experiments at Ercildoune, Victoria, Australia, have been unusually successful; 9,100 ova were collected, of which 2,000 were salmon trout.

THE additions to the Zoological Society's Gardens during the past week include a Purple-faced Monkey (*Semnopithecus leucoprymnus*) from Ceylon, presented by Mr. Wm. Collingwood; a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mr. Henry Thimbleby; a White-cheeked Capuchin (*Cebus lunatus*) from Brazil, presented by Mr. Henry Ch. Marckman de Lichtabbell; two Common Cranes (*Grus cinerea*), European, presented by Mr. Norman W. Shairp; a Rose Hill Parrakeet (*Platycercus eximius*) from New South Wales, presented by Mr. Charles Porter; a Common Chameleon (*Chamæleon vulgaris*) from North Africa, presented by Mr. Percy Day; a West African Python (*Python sebæ*) from West Africa, presented by Dr. F. Speer; a Bless-bok (*Alcelaphus albifrons*) from South Africa, a Prince Albert's Curassow (*Crax alberti*) from Columbia, deposited; a Sulphur-breasted Toucan (*Ramphastos carinatus*) from Mexico, purchased.

OUR ASTRONOMICAL COLUMN

THE BINARY STAR α CENTAURI.—Mr. W. L. Elkin, who has been recently a student at the University of Strassburg, has given, in a dissertation for the degree of Doctor, a new determination of the orbit of this remarkable star, in which he has had the advantage of a fine series of measures executed by Sir T. Maclear, Mr. W. Mann, and Mr. G. Maclear at the Royal Observatory, Cape of Good Hope, collected and forwarded to him by Mr. Gill. We subjoin his elements, which, though not considered definitive, yet appear to represent the whole course of micrometrical measures very satisfactorily. Mr. Gill's measures in 1877 seem to indicate well the position of the companion about its nearest approach to the principal star, which it was feared at one time there would be danger of losing at this passage of the periastre. For the sake of comparison the provisional orbit deduced in 1879 by Dr. Doberck is annexed; the most noticeable difference is in the period of revolution.

	Elkin.		Doberck.
Passage of periastre	1875·97	... ...	1875·12
Node	25° 47′	... ...	25° 32′
Node to periastre on orbit.	54° 47′	... ...	45° 58′
Inclination	79° 32′	... ...	79° 24
Excentricity	0·5260	... ...	0·5332
Semi-axis major	17″·50	... ...	18″·45
Revolution	77·42 years	...	88·536 years.

Mr. Elkin's orbit gives the following angles and distances:—

1880·0	...	Position	185°·7	... Distance	4″·79
1881·0	...	,,	192·4	... ,,	6·81
1882·0	...	,,	196·1	... ,,	8·70
1883·0	...	,,	198·5	... ,,	10·42
1884·0	...	,,	200·2	... ,,	11·98

For the absolute parallax of α_2 Centauri, he states that the series of 156 altitudes observed on the same days, directly and by reflection with the Cape circle in the years 1856-60, assigns + 0″·798 ± 0″·068; Moesta from observations at Santiago had found 0″·88. Although a large parallax, the largest perhaps yet detected, may still be attributed to this star, it appears to be Mr. Elkin's conclusion that it yet remains to be determined within very narrow limits. Probably Mr. Gill, with the aid of the heliometer, may in due course give a good account of it.